

## Claims

1. A method for monitoring the functional capability of a particle detector (3), using a particle filter (7) connected upstream of the particle detector (3) in terms of the flow direction (2),

characterized in that

particles that occur in the regeneration of the particle filter (7) are detected by the particle detector (3), and the resultant measurement finding is compared with an expected finding.

2. The method of claim 1, characterized in that the expected finding from the measurement of the particle detector (3) is determined on the basis of the fill status of the particle filter (7) and on the regeneration conditions.

3. The method of claim 1 or 2 for monitoring the functional capability of a soot detector (3), using a soot filter (7) which can be regenerated by being burned off, characterized in that ions that occur during the regeneration are detected by the soot detector (3).

4. The method of claim 3, characterized in that the temperature is measured in, at or downstream in the flow direction (2) of the soot filter (7), and the expected finding of the measurement by the soot detector (3) is determined from the fill status of the soot filter (7) and the measured temperature.

5. The method of one of claims 1 through 4, characterized in that the deviation of the measurement finding from the expected finding is determined and compared with a limit value, and if the limit value is exceeded the particle detector (3) is classified as defective.

6. The method of one of claims 1 through 5, characterized in that during the monitoring of the functional capability of the particle detector (3), the regeneration conditions are changed, and in particular the temperature in the environment of the soot filter (7) is increased.

7. The method of one of claims 3 through 6, characterized in that for regeneration of the soot filter (7), the temperature in its environment is increased to above 500°C, preferably to from 600 to 1000°C.

8. A system for monitoring the functional capability of a particle detector (3), using a particle filter (7) connected upstream of the particle detector (3) in terms of the flow direction (2),

characterized by

a control and evaluation unit (9), which during the regeneration of the particle filters (7) detects measurement findings furnished by the particle detector (3) and compares them with expected findings.

9. The system of claim 8, characterized in that the control and evaluation unit (9) is designed such that by means of a predetermined model, an expected measurement finding can be determined from the current fill status of the filter and the given regeneration conditions.

10. The system of claim 8 or 9, characterized in that a temperature sensor (8) is located in, at or downstream in the flow direction (2) of the particle filter (7).

11. A control and evaluation unit (9) for a system as defined by one of claims 8 through 10.

12. A computer program with program code means, for performing all the steps of one of claims 1 through 7, if the computer program is executed on a computer or a corresponding computer unit, in particular of the control and evaluation unit (9) in a system of claim 8.

13. A computer program product with program code means which are stored in memory on a computer-readable data medium, for performing a method of one of claims 1 through 7, if the computer program product is executed on a computer or a corresponding computer unit, in particular of the control and evaluation unit (9) in a system of claim 8.